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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.  | CONFIRMATION NO. |
|---|-------------|----------------------|----------------------|------------------|
| 10/566,580  | 01/31/2006  | Mitsuru Yamamoto     | Q92973               | 5128             |
| 23373   | 7590        | 04/17/2008           | EXAMINER             |                  |
| SUGHRUE MION, PLLC<br>2100 PENNSYLVANIA AVENUE, N.W.<br>SUITE 800<br>WASHINGTON, DC 20037 |             |                      | STIMPERT, PHIL PEARL |                  |
|   |             |                      | ART UNIT             | PAPER NUMBER     |
|   |             |                      | 3746                 |                  |
|   |             |                      | MAIL DATE            | DELIVERY MODE    |
|   |             |                      | 04/17/2008           | PAPER            |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/566,580

**Applicant(s)**

YAMAMOTO ET AL.

**Examiner**

Philip Stimpert

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 January 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-5 is/are rejected.  
7) ☒ Claim(s) 6-13 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 31 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date 1/31/2006  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 1 is objected to because of the following informalities: line 2 of claim 1 recites "a pressure chamber formed into a flat shape and is filled up with liquid," which is grammatically incorrect in its disagreement between "formed" and "is filled up." Furthermore, line 6 recites "and for accelerating," while line 9 recites "and for oscillation" which are also incorrect. Appropriate correction is required.
2. Claims 6-13 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 6-13 have not been further treated on the merits.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Regarding claim 1, lines 3-4 recite "a suction side flow passage and a discharge side flow passage disposed at both ends of the pressure chamber." This recitation is indefinite, as it appears to require that both passages are disposed at each end. This recitation will be interpreted as "a suction side flow passage disposed at a first end of

the pressure chamber and a discharge side flow passage disposed at a second end of the pressure chamber opposite from the first end."

6. Regarding claim 3, the claim recites "a radial direction," and a point which is "the center." First, the limitation "the center" lacks clear antecedent basis. If the intended antecedent basis for this limitation lies with "radial," then this relationship should be further clarified in the claim. Second, there is no reference frame for the term "radial," which renders the claim indefinite.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Grosjean et al. (US 6,520,753).

9. Regarding claim 1, Grosjean et al. teach a diaphragm pump comprising a pressure chamber (21, 22, 23) formed into a flat shape (as shown in Figs. 1-2 particularly) and filled with liquid (col. 2, ln. 23-25), a suction side flow passage (24) at a left end of the pressure chamber (21, 22, 23) and a discharge side flow passage (26) at the right end of the pressure chamber (21, 22, 23). The axes of the flow passages may be considered to be aligned in several senses. The vertical sections of these passages are substantially parallel, which constitutes a form of alignment. Furthermore, the are are also coaxial sections of these passages interfacing directly with the pressure

chamber ends (21, 23). Grosjean et al. also teach a groove (namely the pressure chamber itself) formed in the peripheral wall of the pressure chamber (21, 22, 23) for accelerating a flow of the liquid downstream (as part of the pumping action of the diaphragm pump generally). Finally Grosjean et al. teach a diaphragm (14) comprising an lower surface of the pressure chamber (21, 22, 23) and oscillating to vary the volume of the pressure chamber (col. 2, ln. 57-61).

10. Regarding claim 2, the pressure chamber of Grosjean et al. has a section (particularly chamber 23) formed in the upper surface of the pressure chamber into which the liquid flows and a side part (to the right of 23, communicating with outlet 26) with an opening opened to a peripheral wall surface (the right side of 26) from which the liquid is discharged downstream in the flow direction.

11. Regarding claim 3, Grosjean et al. teach that the pressure chamber (21, 22, 23), and thus the groove, is generally linear. Thus if a point is selected within the groove somewhere in the vicinity of the discharge port, the groove will extend from that point, and may thus be considered to extend in a radial direction. Therefore, and in light of the indefiniteness of this claim as noted above, it is assumed that Grosjean et al. meet the limitations of claim 3.

12. Regarding claim 4, Grosjean et al. teach that the axes of the flow passages are positioned substantially at the center of the cross-sectional shape of the pressure chamber in a surface orthogonal to the axes, as is shown in Figs. 2 and 8 particularly.

13. Regarding claim 5, as shown in Figs. 1, 2, and 8, Grosjean et al. teach that each cross-sectional shape of the pressure chamber (21, 22, 23), the suction side flow

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passage (24), and the discharge side flow passage (26) in surfaces orthogonal to the axes are formed in an approximate rectangle.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip Stimpert whose telephone number is (571)270-1890. The examiner can normally be reached on Mon-Fri 7:30AM-4:00PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/  
Supervisory Patent Examiner, Art  
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/P. S./  
Examiner, Art Unit 3746  
14 April 2008